UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,408	09/28/2001	Srinivas Gutta	US010472 (702054)	4380

			EXAMINER
24737	7590	11/16/2004	KIBLER, VIRGINIA M

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ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _28 September 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _09282001_.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities: "_____" should be

changed to "09/966,436" on page 14, line 29.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   Claims 4 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

Claim 4 recites the limitation "said applied rule" in line 4. There is insufficient

antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "said applied rule" in line 4. There is insufficient

antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1, 11, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Lorente

et al. ("Face Recognition of Video Sequences in a MPEG-7 Context Using a Global Eigen

Approach").

Regarding claims 1, 11, and 18, Lorente et al. ("Lorente") discloses:

a) training a classifier device for recognizing one or more facial images and obtaining

corresponding learned models the facial images used for training (Pages 187-188;

Sect. 2; Figure 2);

b) inputting a vector including data representing a portion of an unknown facial image to

be recognized into said classifier (Page 189-190; Sect. 4);

c) classifying said portion of said unknown facial image according to a classification

method (Page 189-190, Sect. 4; Figure 2);

d) repeating step b) and c) using a different portion of said unknown facial image at each

iteration (Sect. 4); and

e) identifying a single class result from said different portions input to said classifier

(Sect. 4).

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

7.   Claims 2-10, 12-17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Lorente et al. ("Face Recognition of Video Sequences in a MPEG-7 Context Using a Global

Eigen Approach") in view of Gutta et al. ("Mixture of Experts for Classification of Gender,

Ethnic Origin, and Pose of Human Faces").

Regarding claims 7 and 17, Lorente does not recognize implementing a Radial Basis

Function Network. However, this is well known in the art. Gutta et al. ("Gutta") discloses a

classifying step implementing a Radial Basis Function Network trained for classifying inputs

based on facial images (pages 948-951; Sects. I-IV).

Lorente and Gutta are combinable because they are from the same field of endeavor of

face recognition. At the time of the invention, it would have been obvious to one of ordinary

skill in the art to modify the classifying step of Lorente to include implementing a Radial Basis

Function Network. The motivation for doing so would have been to increase the accuracy of the

face recognition process (Page 957-958, Sect. VIII). Therefore, it would have been obvious to

combine Lorente with Gutta to obtain the invention as specified in claims 7 and 17.

Regarding claim 8, the arguments analogous to those presented above for claim 7 are

applicable to claim 8. Gutta discloses:

(a) initializing the Radial Basis Function Network, the initializing step comprising the

   steps of: fixing the network structure by selecting a number of basis functions F,

   where each basis function I has the output of a Gaussian non-linearity; determining

   the basis function means μ_I, where I=1,..,F, using a K-means clustering algorithm;

   determining the basis function variances σ_I^2; and determining a global proportionality

   factor H, for the basis function variances by empirical search (Pages 950-952; Sect.

   IV);

(b) presenting the training, the presenting step comprising the steps of: inputting training

patterns $X(p)$ and their class labels $C(p)$ to the classification method, where the

pattern index is $p=1,...,N$; computing the output of the basis function nodes $y_i(p)$, F,

resulting from pattern $X(p)$; computing the F x F correlation matrix R of the basis

function outputs; and computing the F x M output matrix B, where d_j is the desired

output and M is the number of output classes and $j=1,..,M$ (Pages 950-952; Sect. IV);

(c) determining the weights, the determining step comprising the steps of: inverting the

F x F correlation matrix R to get R^{-1}; and solving for the weights in the network

(Pages 950-952; Sect. IV).

Regarding claim 9, Gutta disclose classifying a face image by computing the basis

function outputs, for all F basis functions; computing output node activations; and selecting the

output z_j with the largest value and classifying the image as a class j (Pages 950-952; Sect. IV).

Note, the combination of Lorente and Gutta disclose the step of presenting each portion at each

iteration to the classification method.

Regarding claim 10, the arguments analogous to those presented above for claim 7 are

applicable to claim 10. Gutta discloses outputting a class label identifying a class to which the

unknown image corresponds to and a probability value indicating the probability with which the

unknown image belongs to the class (Pages 950-953; Sect. IV).

Regarding claims 2, 12, and 19, the arguments analogous to those presented above for

claims 7 and 10 are applicable to claims 2, 12, and 19. Gutta discloses obtaining a probability

measure or confidence score (Pages 950-953; Sect. IV).

Regarding claims 3, 13, and 20, the arguments analogous to those presented above for claim 2 are applicable to claims 3, 13, and 20. Gutta discloses applying a rule to said confidence score to obtain said single class result (Pages 950-953; Sect. IV).

Regarding claims 4 and 14, the arguments analogous to those presented above for claims 2 and 3 are applicable to claims 4 and 14. Gutta discloses said confidence score is a probability measure that an image is identified with a class, said applied rule including obtaining a class having the majority of class labels determined for each unknown image (Page 952; Sect. B and C).

Regarding claims 5 and 15, Lorente discloses decreasing at each iteration the portion of the unknown image being tested and comparing the decreased portion of the unknown image against a corresponding decreased portion of the learned model image for each class (Sect. 4; Figure 1).

Regarding claims 6 and 16, Lorente discloses the portion are decreased at various increments (Figure 1), but does not specify being decreased from 100% to 50% at equal decrements. However, it would have been obvious to one of ordinary skill in the art to have modified the portions disclosed by Lorente to a desired size depending design choice. Therefore, it would have been obvious to modify the image portions disclosed by Lorente to include portions decreased from 100% of the image to 50% at equal decrements because it is well known in the art.

Other Prior Arts Cited

8.   The prior art made of record and not relied upon is considered pertinent to applicant's
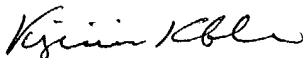
disclosure.

U.S. Pat. No. 6,778,705 to Gutta et al. for classification of objects through model

ensembles.

Contact Information

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072.

The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Virginia Kibler can be reached on (703) 306-4072. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Virginia Kibler
11/14/04

MEHRDAD DASTOURI
PRIMARY EXAMINER